An Eco-Health approach to plant pathology in agricultural development: Smallholder cocoa

David Guest
Merrilyn Walton
John Konam
Grant Vinning
How do we motivate farmers to intensify production?
Uncertainty

› Farmers face pressure from rapid social, environmental and economic changes
  - Labour shortages
  - Poor health and nutrition
  - Lack of market incentives
  - Rising costs for fuel, fertiliser etc.
  - Pests and diseases
  - Climate change
  - Declining soil fertility, water shortages

› Constrained by past experience and lack of resources, skills and information
## Options for improved management

<table>
<thead>
<tr>
<th>Cocoa IPDM (Konam et al. 2008)</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
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<tbody>
<tr>
<td>Sanitation</td>
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<td>Weeding</td>
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<td>Pruning</td>
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<td>Canker treatment</td>
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<td>Weekly harvesting</td>
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<td>Manures</td>
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<td>Fertilisers</td>
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<td>Insect management</td>
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<td>Expected yield (kg/ha)</td>
<td>350</td>
<td>800</td>
<td>1,200</td>
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2 hours/day per ha
Conventional approaches

Extension depends on top down, spoon-fed solutions that:

- Are all or nothing
- Involve once-off visits
- Are inflexible
- Provide “Black-box” technology-driven solutions
- Satisfy project milestones
- Impacts rarely evaluated

This approach alienates researchers and extension, and disempowers farmers
Limitations

› Farmers have plenty of training

› Assumes spare labour and capital, but for cocoa farmers:
  - Minority (37% in Bougainville, 30% in Sulawesi) have bank accounts and limited access to loans
  - 53% report that their health limits work:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Bougainville</th>
<th>Sulawesi</th>
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<tbody>
<tr>
<td>Back pain</td>
<td>43</td>
<td>34</td>
</tr>
<tr>
<td>Arthritis and joint pain</td>
<td>31</td>
<td>33</td>
</tr>
<tr>
<td>Recent malaria</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Blurred vision</td>
<td>21</td>
<td>33</td>
</tr>
<tr>
<td>Teeth problems</td>
<td>20</td>
<td>33</td>
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<tr>
<td>Childhood stunting</td>
<td>68</td>
<td>50</td>
</tr>
</tbody>
</table>
Strategies for sustainable cocoa production

- Intensification, diversification and equity
- **Interdisciplinary (Eco-health)** approaches that include plant health, community health, education, business skills, marketing
  - Improve local research and extension skills and capacity
  - Appropriate research built on local knowledge, requirements and resources
  - Improve market access and profitability
  - Engage value chain
Thanks

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